

## The Potential Cost of Renewable Energy Use by State Government

Jim Doyle has published a policy statement about renewable energy on his web site as follows:

*Innovative new technologies are making it possible to dramatically reduce our consumption of natural resources. As Governor, Jim Doyle will set a state goal that 10 percent of Wisconsin's energy will be derived from clean, renewable energy sources within ten years. Doyle will help expand the renewable energy market by setting a goal that at least 10 percent of the energy used to run state government offices will come from renewable energy sources by 2005 and 20% by 2007. Doyle will also set a goal that either alternative fuel or hybrid automobiles will make up at least 5% of all new state automobile purchases in 2004, growing 5% a year to 20% by 2007.*

### Analysis

#### Assumptions:

- Only state offices (not the University system or prison system) are included.
- The existing Wisconsin electrical supply is 4.7 percent renewable based.
- Wisconsin's renewable energy supply percentage will increase by 0.7 percent by 2005 and 1.05 percent by 2007 due to existing provisions in the Renewable Portfolio Standard from 1999 Wisconsin Act 9.
- The average additional cost of extra renewable electricity bought through green energy programs is 3.0 cents (Note: MG&E: 3.3 cents/kWh; WE: 2.04 cents per kWh; WPSC: 2.65 cents/kWh)
- 75 % of all thermal energy comes from coal based district heating systems.
- Up to 30 % of this coal could be replaced with paper pellets in existing systems at no marginal cost.
- No thermal supply currently comes from renewable energy
- No increases in electricity or thermal use in the future

Energy use by state government offices		
Agency	kWh/year (million)	Btu/year (billion)
Administration	62.3	507.8
Health & Family Services	37.2	715.3
Veteran Affairs	8.3	116.2
<b>TOTAL</b>	<b>110.8</b>	<b>1,339.3</b>

**2005 additional costs**Electricity

Base in existing grid:  $4.7\% + 0.7\% = 5.4\%$

Additional Percentage needed for 10 percent: 4.6

Additional Cost (@3 cents/kWh margin):

$(0.046) \times (110.8 \text{ million kWh per year}) \times \$0.03 \text{ per kWh} =$   
\$152,904 per year

Thermal

Note: Using up to 30 percent heat input of 75 percent of the coal based district heating equals 22.5 percent of the total. Therefore, there may be no increase in thermal costs.

**2010 additional costs**Electricity

Base in existing grid:  $4.7\% + 1.05\% = 15.75\%$

Additional Cost (@3 cents/kWh margin):

$(0.1575) \times (110.8 \text{ million kWh per year}) \times \$0.03 \text{ per kWh} =$   
\$445,970 per year.

Thermal

Note: Using up to 30 percent heat input of 75 percent of the coal based district heating equals 22.5 percent of the total. Therefore, there may be no increase in thermal costs Note: Using up to 30 percent heat input of 75 percent of the coal based district heating equals 22.5 percent of the total. Therefore, there may be no increase in thermal costs.

Alternative Fuel Vehicle Purchases

In 2002, the state anticipates purchasing 365 vehicles that can run on an 85% blend of ethanol and 21 vehicles that can run on compressed natural gas. There is no additional cost for the ethanol vehicles. These 386 purchases currently represent \_\_\_\_ percent of total annual purchases. Since this is more than the 20 percent called for in 2007, there would not be any additional cost over existing standard procedure.

Source:

- DOA, "Energy Use in State-Owned Facilities", Fiscal Year 2001
- Personal Communication with MG&E, WE and WPSC green rate personnel
- DOA, "Wisconsin Energy Statistics 2002, Preliminary Draft
- 1999 Wisconsin Act 9
- DOA, "Wisconsin Gasohol and Alternative Fuel Use", Annual Report, April 2002.